



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,700	11/25/2003	Masaru Kihara	032134	3038

38834 7590 09/15/2006

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP  
1250 CONNECTICUT AVENUE, NW  
SUITE 700  
WASHINGTON, DC 20036

EXAMINER

ALEJANDRO, RAYMOND

ART UNIT PAPER NUMBER

1745

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

14

# Office Action Summary

Application No.

10/720,700

Applicant(s)

KIHARA, MASARU

Examiner

Raymond Alejandro

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11/25/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/25/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3 IDS (see item 2).
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

### *Information Disclosure Statement*

2. The information disclosure statements (IDS) submitted on 11/25/03, 06/10/04, 04/08/05 have been considered by the examiner.

### *Drawings*

3. The drawings were received on 11/25/03. These drawings are acceptable.

### *Specification*

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohno et al 6130006 view of the Japanese publication JP 10-294109 (heretofore 'the JP'109').

The present application is geared toward a nickel-hydrogen secondary battery wherein the disclosed inventive concept comprises the specific hydrogen-absorbing alloy.

As to claim 1:

Kohno et al disclose illustrate in Figure 2 a battery comprising a case 1, a positive electrode 2, a negative electrode 4, and a separator 3, and alkaline electrolyte (COL 32, line 14 to COL 33, line 60/ FIGURE 2).

Art Unit: 1745

Kohno et al's positive electrode includes a nickel hydroxide powder; and may also contain at least one oxide or hydroxide of metal selected from the group consisting of zinc and cobalt (COL 32, lines 49-62).

Kohno et al's negative electrode includes a hydrogen absorbing alloy powder (COL 33, lines 5-10). **Table 7** below shows examples hydrogen absorbing alloy compositions comprising Mg, at least La, at least Co, Al, and nickel. *Thus, Kohno et al directly exemplified and show with sufficient specificity the hydrogen absorbing alloy composition claimed by the applicant.*

TABLE 7

Compositions		40
Example 45	$\text{Mg}_{0.31}\text{La}_{0.69}(\text{Ni}_{0.8}\text{Co}_{0.1}\text{Al}_{0.1})_{3.2}$	
Example 46	$\text{Mg}_{0.3}\text{La}_{0.5}\text{Pr}_{0.2}(\text{Ni}_{0.8}\text{Mn}_{0.15}\text{Si}_{0.05})_{3.4}$	
Example 47	$\text{Mg}_{0.27}\text{La}_{0.53}\text{Nd}_{0.2}(\text{Ni}_{0.8}\text{Mn}_{0.1}\text{Co}_{0.1})_{3.05}$	
Example 48	$\text{Mg}_{0.25}\text{Lm}_{0.75}(\text{Ni}_{0.85}\text{Co}_{0.1}\text{Fe}_{0.05})_{3.7}$	
Example 49	$\text{Mg}_{0.24}\text{Lm}_{0.76}(\text{Ni}_{0.8}\text{Mn}_{0.15}\text{Ga}_{0.05})_{3.65}$	45
Example 50	$\text{Mg}_{0.34}\text{Lm}_{0.66}(\text{Ni}_{0.75}\text{Co}_{0.1}\text{Mn}_{0.1}\text{Al}_{0.05})_{3.33}$	
Example 51	$\text{Mg}_{0.25}\text{Lm}_{0.45}\text{Pr}_{0.3}(\text{Ni}_{0.68}\text{Co}_{0.2}\text{Cu}_{0.1}\text{Zn}_{0.02})_{3.5}$	
Example 52	$\text{Mg}_{0.28}\text{Lm}_{0.62}\text{Nd}_{0.1}(\text{Ni}_{0.84}\text{Cu}_{0.1}\text{Sn}_{0.05}\text{B}_{0.01})_{3.3}$	

As to claims 4-6:

Kohno et al's positive electrode includes a nickel hydroxide powder; and may also contain at least one oxide or hydroxide of metal selected from the group consisting of zinc and cobalt (COL 32, lines 49-62). *Since Kohno et al disclose that conductive materials can be added to the nickel hydroxide, it is contended that the average valency behavior (i.e. higher than 2) of the nickel contained in the nickel hydroxide is a inherent characteristic thereof first because of the addition of more conductive material, specifically Co, which tends to alter valency upon interaction with Ni, and second because during charging and discharging cycles the nickel hydroxide is compelled to take transitional states for electrochemical reaction purposes.*

As to claim 7:

Art Unit: 1745

Kohno et al's positive electrode may also contain at least one oxide or hydroxide of metal selected from the group consisting of zinc and cobalt (COL 32, lines 49-62).

As to claim 10:

Kohno et al's negative electrode is a hydrogen absorbing alloy powder (COL 33, lines 5-10) and may further include La, Ce, Pr, Nd and Y (COL 11, lines 45-55). Examples 45-47 illustrates the inclusion of Co and Al as well (See EXAMPLES 45-47).

Example 45	$\text{Mg}_{0.31}\text{La}_{0.69}(\text{Ni}_{0.8}\text{Co}_{0.1}\text{Al}_{0.1})_{3.2}$
Example 46	$\text{Mg}_{0.3}\text{La}_{0.5}\text{Pr}_{0.2}(\text{Ni}_{0.8}\text{Mn}_{0.15}\text{Si}_{0.05})_{3.4}$
Example 47	$\text{Mg}_{0.27}\text{La}_{0.53}\text{Nd}_{0.2}(\text{Ni}_{0.8}\text{Mn}_{0.1}\text{Co}_{0.1})_{3.05}$

Example 57  $\text{La}_{0.57}\text{Pr}_{0.17}\text{Mg}_{0.25}\text{Ti}_{0.01}(\text{Ni}_{0.92}\text{Co}_{0.05}\text{Mn}_{0.02}\text{Al}_{0.01})_{3.54}$

Example 82  $\text{La}_{0.63}\text{Nd}_{0.1}\text{Mg}_{0.27}(\text{Ni}_{0.85}\text{Co}_{0.1}\text{Cr}_{0.03}\text{Fe}_{0.02})_{3.7}$

Kohno et al disclose a nickel-hydrogen secondary battery according to the aforementioned aspects. However, Kohno et al do not expressly disclose the specific additional element, and the cobalt compound coated on the nickel hydroxide.

As to claims 1 and 8-9:

The JP'109 discloses nickel electrodes for alkaline storage battery (TITLE) wherein the nickel hydroxide electrode contains  $\text{Y}_2\text{O}_3$  powder included therein (ABSTRACT).

As to claims 2-3:

The JP'109 discloses nickel electrodes for alkaline storage battery (TITLE) wherein the nickel electrode includes a covering layer composed of an Na-containing Co compound formed on the surface of the nickel hydroxide particle (ABSTRACT)

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the art at the time the invention was made to use the specific additional element

Art Unit: 1745

of the JP'109 in the positive electrode of Kohno et al as the JP'109 discloses a positive electrode having such specific additional element has an excellent charging characteristic particularly at a high temperature.

As to the cobalt compound coated on the nickel hydroxide, it would have been obvious to a person possessing a level of ordinary skill in the art at the time the invention was made to use a cobalt compound coating on the nickel hydroxide of the positive electrode of Kohno et al as taught by the JP'109 because the JP'109 discloses that positive electrodes including such a coating material have an excellent charging characteristic particularly at a high temperature.

### ***Conclusion***

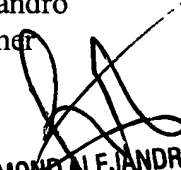
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Raymond Alejandro  
Primary Examiner  
Art Unit 1745

  
**RAYMOND ALEJANDRO  
PRIMARY EXAMINER**